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CERTAIN SHELL HEAPS OF THE ST. JOHN'S RIVER FLORIDA, HITHERTO UNEXPLORED.

By Clarence B. Moore.

(Continued from January Number, 1893.)

(Second Paper.)

West end of ridge on summit, 7x4x7½ feet deep. At a depth of 1 foot 6 inches, an arrow-head with bones of lower edible animals, was found. Two feet down were fragments of turtle shell, and a half a foot lower, a fragment of a bone awl was met with. At 5 feet, 6 inches, from the surface was a well defined fire-place, with bones of the turtle. The shells are almost exclusively *Paludinæ,* with occasional *Unionidæ* and few *Ampullariæ.*

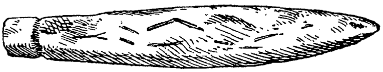
EXCAVATION II.

North-east side of mound about ten feet vertically from the base. Besides the usual fire-places and bones of edible animals, a fragment of a *Fulgur* was found at a depth of four feet.

EXCAVATION III.

On summit near center of ridge, 9x9x11 feet deep. No clearly marked strata were met with, the excavation being carried through shell with a considerable percentage of broken shell and sand. The following objects were found ;—flint flake at a depth of 6 inches; fragment of bone awl 1 foot down; small pendant ornament of shell 1½ feet from surface, (Fig. 4)

Fig. 4. Size, $\frac{1}{1}$.



with bone implement; shell gouge (broken) 2 feet down; rude arrow-head on fire-place, 4½ feet down; flint flake 5 feet down; arrow-head lying on fire-place, at a depth of 6½ feet from surface; portion of arrow-head on fire-place, bearing marks of fire at a depth of 8 feet; fragment of bone awl 9 feet 9 inches down; rude bone awl 10 feet down; bones of edible animals, mainly of alligator, deer and turtle, at all depths.

EXCAVATION IV.

At margin of base north-east portion of mound. Trench 11½x10x6 feet deep at end. A piece of coquina, smooth on one side, evidently used for polishing, at a depth of 2½ feet, and a fragment of arrow-head with the usual bones of edible animals, were the only objects of interest met with.

As before stated, absolutely no pottery was seen in the excavation, and this, with the 600 feet of swamp between the mound and the river, would argue for Mt. Taylor a place among the earliest shell heaps of the St. John's. It was the habit of the builders of the shell heaps where solid ground was to be found, to locate their refuse heaps upon it, and it seems unlikely that a spot so far distant from the river's edge as is Mt. Taylor to-day, should have been selected. It is a much more likely hypothesis that the swamp is the result of a change of channel in the river, and has formed since the abandonment of the mound. Professor Wyman has graphically described in his memoir (page 83 et. seq.) the manner of formation of similar swamps. The time required to transform a portion of the river into swamp-land, the writer of this paper believes to be somewhat less than is generally supposed, owing to the great abundance of floating vegetation upon the river. At Little Orange mound, opposite Lake Dexter, is a steam boat wharf in use within eight years, according to the owner of the place. At present, masses of vegetation extending some distance into the river have made access impossible for a boat of any draught, and are speedily forming the nucleus of a future swamp.

Assuming this hypothesis of the formation of the swamp after the completion of the mound to be correct, an indication of minimum age may be obtained in the case of Mt. Taylor through the size of trees growing between it and the water's edge. Between it and the river grow two cypresses, respectively 14 feet in circumference four feet from the ground, and 19 feet, 3 inches, 5 feet from the ground; while a little to the north-west of the mound in the swamp grows a cypress 23½ feet in circumference at a height of 5 feet from the ground. The cypress is a tree of slow growth, by some being placed next to the live oak in this respect.

Another point illustrated by Mt. Taylor is that neighboring shell heaps are by no means of necessity contemporary. In close proximity to it in the river, is Bird's Island,[1] covered with a shell deposit between five and six feet in thickness. Throughout this deposit to the very bottom unornamented pottery is found in great abundance. North of Bird's Island, on the western bank of the river, is the shell bluff described by Professor Wyman (Note A.). This shell bluff, by the absence of pottery and the small size of its *Paludinæ*, differs widely from Bird's Island, and is probably contemporary with Mt. Taylor.

Just what impelled the makers of Mt. Taylor to pile the debris of their meals to such a height and at such an angle it is impossible to surmise. No ridges of shell led to it, while no shell fields surround it, and it is evident that great care was taken looking to its isolation and to give to it its height and shape. In comparison with the shell deposits of Huntoon Island, of Bluffton, of Silver Spring (Lake George), of Tick Island and other localities where the shell deposit, though large, is spread over great areas and not piled at a single spot, the contrast is especially striking.

SHELL DEPOSIT OPPOSITE BLUFFTON.

On the west bank of the river, opposite Bluffton, is a level deposit of shell bordering the water. About fifty yards inland is a small symmetrical mound, not over three feet in height, composed of the same material as the shell deposit, namely shell and powdered shell. An excavation was made in the center of the mound, and within a foot of the surface were found various parts of a skeleton, apparently of a woman. The jaws and all other facial bones were missing, as were one femur, one humerus, both tibiæ and all bones of the feet. Many of the bones had fractures not caused during the excavation, the area of the fracture being of the same color as the remainder of the bone. With the remains were several bits of pottery which seemed to be wanting in the mound, save in association with the bones, and this fact would indicate a burial, as would the symmetrical shape of the mound. The fractures can readily be explained by the proximity to the surface, where the tramping of feet could without difficulty separate and fracture the bones. On the other hand, the absence of so many important bones—for which very careful search was made—would seem to indicate that the entire body was not placed within the mound. The various conflicting facts connected with this case offer one of those questions, unfortunately without solution, which from time to time confront the explorer of the shell heaps.

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[1] The *Paludinæ* on Bird's Island, it may be remarked, are far larger than any found at Mt. Taylor; well illustrating a point stated in the preceding paper that shell fish of the St. John's had a middle period of increased development, and a subsequent relapse to their earlier condition.

Near this point Mr. Dease, of Volusia, found a small earthenware bowl clinging to the roots of an overturned palmetto, and presented it to the writer.

NOTE A.

AS TO A NATURAL ORIGIN OF ANY OF THE FRESH-WATER SHELL HEAPS OF THE RIVER.

It will be remembered that at the time when Professor Wyman wrote, the agency of man in connection with the shell heaps of the St. John's was nowhere admitted. It is therefore quite natural that taking the initiative in this matter he should have been averse to making any sweeping assertions. There is, however, little room to doubt that all the shell heaps are the work of man. Of the shell bluff near Astor, (Fort Butler) he says[2] (page 38) "taken by itself, in view of the absence of human implements we should hardly feel justified in saying that it was made by man; though in its general features it resembles his work." At the base of this bluff the writer picked up a chisel of shell, and, what is more conclusive (since objects not in place prove but little) a clearly defined fire-place was discovered at a depth of four feet from the surface. It is perfectly safe to say that no fresh-water shell heap can be found on the St. John's River where a careful search would not reveal unmistakable evidences of human agency in its origin.

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[2] *Op. cit.*